[ORAL ARGUMENT NOT SCHEDULED]

No. 23-1173

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

INTERSTATE NATURAL GAS ASSOCIATION OF AMERICA,

Petitioner,

v.

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION, et al.,

Respondents.

On Petition for Review of a Final Rule Issued by
the Pipeline and Hazardous Materials Safety Administration

INITIAL BRIEF FOR RESPONDENTS

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CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

Pursuant to D.C. Circuit Rule 28(a)(1), the undersigned counsel certifies as follows:

A. Parties and Amici

Petitioner is Interstate Natural Gas Association of America.

Respondents are Pipeline and Hazardous Materials Safety Administration and U.S. Department of Transportation.

Amicus curiae is Pipeline Safety Trust.

B. Rulings Under Review

The ruling under review is a final rule of the Pipeline and Hazardous Materials Safety Administration (PHMSA) titled "Pipeline Safety: Safety of Gas Transmission Pipelines: Repair Criteria, Integrity Management Improvements, Cathodic Protection, Management of Change, and Other Related Amendments" published in the Federal Register at 87 Fed. Reg. 52,224 (Aug. 24, 2022) (JA___-___). PHMSA denied petitioner's administrative petition for reconsideration on April 19, 2023. PHMSA issued technical corrections titled "Pipeline Safety: Safety of Gas Transmission Pipelines: Repair Criteria, Integrity Management Improvements, Cathodic Protection, Management of Change, and Other Related Amendments:

Technical Corrections; Response to Petitions for Reconsideration" published in the Federal Register at 88 Fed. Reg. 24,708 (Apr. 24, 2023) (JA___-___).

C. Related Cases

Undersigned counsel is not aware of any related cases pending in this Court or any other court.

/s/ Brian J. Springer
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INTRODUCTION

This case concerns pipeline safety regulations issued by the Pipeline and Hazardous Materials Safety Administration (PHMSA) following one of the most devastating pipeline incidents in modern history: a 2010 pipeline explosion in San Bruno, California that claimed eight lives, injured 60 other people, and caused extensive property damage. Responding to this and other incidents, PHMSA undertook a comprehensive effort to revise its regulations to address issues like corrosion and defects in the pipe that are responsible for pipeline failures. The final rule and the associated risk assessment were the product of several rounds of public comment and recommendations by an expert advisory committee. Petitioner, a pipeline trade association, participated fully in that rulemaking process, and PHMSA made meaningful changes based on industry input without compromising safety. PHMSA also made technical corrections and exercised enforcement discretion in response to petitioner's request for reconsideration on dozens of issues.

Petitioner now urges this Court to take a red pen to the final rule and strike the handful of requirements that petitioner dislikes. Those provisions are directed to preventing the internal corrosion of pipes, prescribing the time to repair defective pipes, and standardizing the methods to find pipe

defects. But petitioner identifies no actual procedural or substantive errors; rather, petitioner complains that the agency drew a line more protective of public safety than petitioner's preferred approach and asserts that its judgment is superior to that of the agency.

Petitioner's repeated invocation of this Court's decision in *GPA Midstream Association v. U.S. Department of Transportation*, 67 F.4th 1188 (D.C. Cir. 2023), fails to transform this policy disagreement at the margins into a categorical legal issue. In *GPA Midstream*, the Court concluded that the agency said nothing about an entire category of pipelines until the final rule. Here, in contrast, the agency at every turn invited and considered robust public discourse on the challenged provisions. Indeed, in many instances, those provisions embody changes that petitioner suggested during the notice-and-comment proceedings but now wishes to further modify.

This Court should reject petitioner's effort to second-guess PHMSA's reasoned judgments in calibrating the rule to protect public safety.

STATEMENT OF JURISDICTION

The final rule was published in the Federal Register on August 24, 2022. 87 Fed. Reg. 52,224 (JA___-___). On September 23, 2022, petitioner filed an administrative petition for reconsideration, which PHMSA denied on

April 19, 2023. PHMSA also made technical corrections to the final rule that were published in the Federal Register on April 24, 2023. 88 Fed. Reg. 24,708 (JA___-___). Petitioner timely filed its petition for review on July 10, 2023. This Court has jurisdiction under 49 U.S.C. § 60119(a)(1).

STATEMENT OF THE ISSUE

Whether PHMSA's issuance of pipeline safety regulations directed to preventing the internal corrosion of pipes, prescribing the time to repair defective pipes, and standardizing the methods to find pipe defects was procedurally proper and substantively reasonable.

PERTINENT STATUTES AND REGULATIONS

Pertinent provisions are reproduced in the addendum to this brief.

STATEMENT OF THE CASE

A. Statutory Background

Congress has directed the Secretary of Transportation to "prescribe minimum safety standards for pipeline transportation and for pipeline facilities" to protect the public "against risks to life and property posed by pipeline transportation and pipeline facilities." 49 U.S.C. § 60102(a)(1)-(2). Those standards "may apply to the design, installation, inspection, emergency plans and procedures, testing, construction, extension, operation, replacement, and maintenance of pipeline facilities." *Id.* § 60102(a)(2)(B).

The Secretary must set standards that account for pipeline safety and environmental protection. *See* 49 U.S.C. § 60102(b)(1)(B). The Secretary also must conduct a risk assessment that identifies the costs and benefits of the proposed standard. *See id.* § 60102(b)(3)(B). The Secretary submits the proposed standard and its risk assessment to the public and to the applicable advisory committee, one for gas pipelines and one for hazardous liquid pipelines. *See id.* §§ 60102(b)(4)(A), 60115(c)(1). The committee—which is composed of qualified members from regulated operators (including petitioner's members), government agencies, and the public—conducts peer review. *See id.* § 60115(a)-(b). Based on the materials submitted by the agency and the discussion during committee meetings, the committee makes recommendations regarding the "technical feasibility, reasonableness, cost-effectiveness, and practicability of the proposed standard." *Id.* § 60115(c)(2). In general, the committee votes on proposed regulatory language and may endorse a proposal as is or suggest that changes be made to make it feasible, reasonable, cost-effective, and practicable.

Before prescribing a final standard, the Secretary must "consider" several factors, including "relevant available" pipeline safety and environmental information, "the reasonableness of the standard," the

"reasonably identifiable or estimated" costs and benefits of the standard, and any comments and recommendations received from the public and the appropriate committee. 49 U.S.C. § 60102(b)(2). In general, "the Secretary shall . . . issue a standard . . . only upon a reasoned determination that the benefits, including safety and environmental benefits, of the intended standard justify its costs." *Id.* § 60102(b)(5). PHMSA carries out these delegated statutory duties. *See id.* § 108(f); 49 C.F.R. § 1.97(a)(1).

B. PHMSA's Pipeline Safety Rule

PHMSA undertook a comprehensive effort to revise its pipeline safety regulations following a major pipeline incident in 2010. In San Bruno, California, a segment of a gas transmission pipeline in a residential neighborhood ruptured, causing an explosion that killed eight people, injured approximately 60 others, destroyed or damaged over 100 homes, and required more than 300 people to evacuate. 87 Fed. Reg. at 52,226 (JA___). The resulting federal investigation by the National Transportation Safety Board found that the pipeline operator had taken insufficient steps "to detect and repair" the anomaly developing on its pipeline seam, which likely caused the explosion. *Id.* (JA___); PHMSA-2011-0023-0661, at 140 (JA___).

Responding to San Bruno and similar incidents, PHMSA issued an advance notice of proposed rulemaking in 2011 seeking public comment on over 100 questions. 76 Fed. Reg. 53,086, 53,088 (Aug. 25, 2011) (JA___). PHMSA received and reviewed 1463 comments from a variety of commenters, such as citizen groups, state and federal agencies, pipeline operators, and trade associations (including petitioner). 81 Fed. Reg. 20,722, 20,736-37 (Apr. 8, 2016) (JA___-___).

In 2016, PHMSA issued a notice of proposed rulemaking advising the public that it planned to update its regulations governing gas transmission pipelines—which operate under higher pressure and present heightened risk warranting commensurate regulatory requirements—and later held 11 days of public advisory committee meetings. The rulemaking addressed, among other things, actions that operators would have to take to monitor and prevent pipes from corroding internally, as well as situations in which operators would have to immediately repair or further assess pipes with cracks, dents, and other anomalies. After making revisions in response to public and committee input, PHMSA promulgated the final rule in 2022. The various provisions challenged in this case are discussed in turn.

1. Internal Corrosion Provision

a. In the rulemaking notice, PHMSA expressed concern that "current requirements for internal corrosion control [we]re non-specific." 81 Fed. Reg. at 20,784 (JA___). Under 49 C.F.R. § 192.477, pipeline operators must check for the actual presence of internal corrosion "[i]f corrosive gas is being transported." Despite this regulation, a pipeline in Carlsbad, New Mexico exploded and killed 12 people in August 2000 "due to severe internal corrosion," PHMSA-2011-0023-0591, at 58 (JA___), and over 200 incidents "attributed to internal corrosion" were reported between 2002 and 2012, 81 Fed. Reg. at 20,810 (JA___). PHMSA recognized a need to add more explicit requirements for operators to "continually or periodically monitor the gas stream for the introduction of corrosive constituents." *Id.* (JA___).

PHMSA proposed to clarify the standards that pipeline operators must use to determine if corrosive gas is being transported. PHMSA "list[ed] examples of constituents" like water and carbon dioxide, 81 Fed. Reg. at 20,786 (JA___), that can make a gas stream corrosive "by [themselves] or in combination," *id.* at 20,830 (JA___). PHMSA noted that system or supply changes could introduce corrosive contaminants into the stream, even if "an initial assessment did not identify the presence of corrosive gas." *Id.* at

20,810 (JA___). PHMSA proposed that each onshore transmission pipeline operator develop and implement "a program to monitor for and mitigate the presence of[] deleterious gas stream constituents." *Id.* at 20,784, 20,830 (JA___, ___). Operators would be obligated, for example, to use "gas-quality monitoring equipment" to assess gas streams "where gas with potentially corrosive contaminants enters the pipeline." *Id.* at 20,830 (JA___).

In its accompanying preliminary regulatory impact analysis, PHMSA described the anticipated costs and benefits of this proposal. The agency expected costs to be low because a large proportion of operators already have "monitors at gas entry points" to comply with Federal Energy Regulatory Commission gas-quality tariffs, 18 C.F.R. part 154. PHMSA-2011-0023-0117, at 90 (JA___). With the high levels of compliance and low cost of equipment, PHMSA estimated incremental costs of only $400,000. *Id.* at 90-91 (JA___-___). On the other hand, given that almost 90% of internal corrosion incidents "were attributed to known or suspected contaminants" addressed by the proposed rule, the new internal corrosion controls would "avert approximately three incidents per year." *Id.* at 126 (JA___). At an average cost per incident exceeding $500,000, *id.* at 178 (JA___), the safety benefits totaled $1.5 million, even excluding other benefits, *id.* at 126-27 (JA___-___).

b. Petitioner (along with other trade associations) disputed the need for any new internal corrosion regulations but also recommended changes to the proposed regulatory text. PHMSA-2011-0023-0439, at 23 (JA___). At the advisory committee meetings, PHMSA suggested adopting much of petitioner's proffered language, and the Technical Pipeline Safety Standards Committee (colloquially the Gas Pipeline Advisory Committee) endorsed the internal corrosion provision as limited to "the transportation of corrosive gas." PHMSA-2011-0023-0657 attach. 1, at 30-32 (JA___-___). Additionally, in light of evidence that some downstream "operators rely on suppliers to monitor gas quality and do not own any gas monitoring equipment," PHMSA proposed (and the committee endorsed) allowing operators to use "monitoring methods," rather than "monitoring equipment," to track gas constituents at input points. *Id.* at 29-30, 32 (JA___-___, ___).

c. In the final rule, *see* 49 C.F.R. § 192.478, PHMSA followed the committee's recommendation "to limit [the provision's] applicability to the transportation of corrosive gas." 87 Fed. Reg. at 52,238 (JA___). While the proposed rule prescribed a monitoring and mitigation program for "onshore transmission pipelines," 81 Fed. Reg. at 20,830 (JA___), the promulgated version is cabined to "onshore gas transmission pipeline[s] with corrosive

constituents in the gas being transported," 87 Fed. Reg. at 52,270 (JA___). Operators must take certain measurements for "each corrosive constituent, where applicable," to determine the contribution to "the internal corrosion of the pipe" and must implement measures "to mitigate the corrosive effects, as necessary." *Id.* (JA___). The "where applicable" and "as necessary" language that PHMSA adopted had been proposed by petitioner. *See* PHMSA-2011-0023-0439, at 25 (JA___).

The rule lists "[p]otentially corrosive constituents" like liquid water and carbon dioxide because each recited constituent can cause corrosion "either by itself or in combination." 87 Fed. Reg. at 52,270 (JA___). As an example, while a pure gas stream may not be corrosive on its own, it could become corrosive if mixed with liquid water. A key part of the monitoring program is accordingly to determine the makeup of the gas stream by "monitoring at points where gas with potentially corrosive contaminants enters the pipeline." *Id.* at 52,238 (JA___). PHMSA found that operators were failing to investigate and minimize the corrosive effects of gas being transported, citing an example where "[t]he root cause" of a 2016 pipeline explosion was "internal corrosion caused by salt water produced from a storage field during gas withdrawal." *Id.* at 52,238 n.28 (JA___ n.28).

The final rule and the final regulatory impact analysis provided the basis for PHMSA's determination that the costs are justified by the benefits. The agency explained that, in its experience, operators already monitor gas quality because they are required to do so "to ensure the quality of delivered product" under Federal Energy Regulatory Commission tariffs, PHMSA-2011-0023-0637, at 30 (JA___), and because gas prices depend on quality, 87 Fed. Reg. at 52,238 (JA___). The new provision "is not expected to add any incremental compliance activities or costs" because operators "already have the infrastructure in place" as part of "existing practice." PHMSA-2011-0023-0637, at 30 (JA___). By allowing the use of monitoring methods rather than requiring the purchase of monitoring equipment, the provision is aimed at sharing existing "gas quality data" gathered for "work with tariffs" with personnel responsible for safety. 87 Fed. Reg. at 52,238 (JA___).

On the other hand, PHMSA explained that by better utilizing that information the rule would prevent "releases and incidents attributed to corrosion," which "continue[d] to occur at a high rate." PHMSA-2011-0023-0637, at 34 (JA___). The agency documented 149 incidents between 2010 and 2021 where "corrosion was identified as the primary cause," approximately half resulting from internal corrosion. *Id.* at 30, 34 (JA___, ___). Those

incidents collectively caused almost $200 million in injuries and property damages, with an average of over $1.3 million per incident. *Id.* at 34 (JA___). This analysis underestimated total benefits because it did not quantify "environmental impact associated with releases and incidents." *Id.* (JA___).

d. Petitioner sought reconsideration on the ground that "the presence of potentially corrosive constituents in gas streams alone may not contribute to internal corrosion." PHMSA-2011-0023-0649, at 9 (JA___). PHMSA agreed that "the mere presence of potentially corrosive constituents in the gas stream does not mean that internal corrosion is an inevitable result" but explained that the rule "ensur[es] operators account for the interaction of constituents that, in given combinations, can make the gas corrosive." *Id.* at 10 (JA___). An operator must "implement monitoring and mitigation programs" as provided in the rule if "potentially corrosive constituents, when considered alongside [pressure, temperature, and other variables] could be expected to result in internal corrosion—such that the operator is transporting gas which is corrosive." *Id.* (JA___).

2. Repair Criteria Provisions

a. In the rulemaking notice, PHMSA proposed to set timeframes for repairing defects in the pipe—like cracks, dents, and metal loss—with

shorter timeframes for more severe defects. PHMSA determined that certain defects should be fixed promptly so that they do not "grow to a size that leads to a leak or rupture." 81 Fed. Reg. at 20,754 (JA___). For example, operators would need to take immediate action when the metal of a pipe's wall is reduced by more than 80% of its thickness. *Id.* at 20,756 (JA___). Other repair criteria would be triggered if, at the site of an anomaly, the predicted pressure at which the pipeline would fail begins to approach (within a specific safety margin) the pipeline's maximum pressure, *i.e.*, the highest normal allowable operating pressure. *See id.* (JA___). Three repair criteria are at issue here.

First, PHMSA considered how to classify cracks. PHMSA proposed to require operators to immediately address "[a]ny indication" of "cracks or crack-like flaws" or "series of interacting cracks" when they became "significant" based on crack depth and length and on predicted failure pressure. 81 Fed. Reg. at 20,826, 20,839 (JA___, ___). Noting that cracking was the suspected cause of a pipeline rupture in Marshall, Michigan in 2010 that released huge amounts of crude oil into the Kalamazoo River and surrounding wetlands, PHMSA also proposed that "any crack or crack-like defect that does not meet the proposed immediate criteria" be repaired

within one or two years. *Id.* at 20,756 (JA___). At the same time, PHMSA did not seek to modify a regulatory catchall provision, which is not specific to cracks and provides that operators must immediately repair anomalies where the pipe strength has a "predicted failure pressure of less than or equal to 1.1 times [the maximum pressure]." *Id.* (JA___).

Second, the proposed rule would require immediate repair related to "[c]orrosion affecting a longitudinal seam"—that is, the line along the length of a pipe where the steel is welded together to form a cylinder. 81 Fed. Reg. at 20,756 (JA___). Thinning of the metal through corrosion can cause pipes to split open at the seam, and certain pipes—including "the failed pipe at San Bruno"—are especially "susceptible" to seam failure because the seam manufacturing method is associated with latent defects. *Id.* (JA___); *see* PHMSA-2011-0023-0735, at 30-31 (JA___-___) (depicting longitudinal fracture). PHMSA thus included metal loss affecting "longitudinal seam[s]" that were formed by "low-frequency or high frequency electric resistance welding," plus "[a]ny indication of significant selective seam weld corrosion," among the immediate repair conditions. 81 Fed. Reg. at 20,839 (JA___); *see* PHMSA-2011-0023-0117, at 73 (JA___) (explaining that "[p]ipe seams formed

by . . . low-frequency or high-frequency electric resistance welding . . . are particularly vulnerable to failure due to selective seam corrosion").

Third, prompted by the advance notice of proposed rulemaking, multiple commenters (including petitioner) indicated that "industry experience has shown that many dents do not require immediate repair." 81 Fed. Reg. at 20,758 (JA___). In the rulemaking notice, PHMSA did "not propos[e] to update . . . at this time" operators' obligation to immediately fix dents with any indication of metal loss or cracking but was open to "continue to evaluate this criterion" and consider "additional research to better define the repair criteria for this specific type of defect." *Id.* (JA___). PHMSA also included other dent-specific criteria that, depending on the dent's location and depth, required operators to take action within two years or to monitor the condition going forward. *See id.* at 20,840 (JA___).

PHMSA explained that these criteria do not impose new obligations to "repair pipeline defects" but address only the "timeliness of repairs." PHMSA-2011-0023-0117, at 32 (JA___). The cost derives from "completing some repair more quickly," while the benefits stem from "averting incidents" by "[p]erforming repairs sooner" before pipelines fail or further devolve. *Id.* (JA___). PHMSA did not expect "an additional cost burden" because in

practice the immediate repair conditions were treated as needing prompt repair, and it projected an annual cost between $1.6 and $3.4 million for repairing other defects on an accelerated timeline. *See id.* at 73-78 (JA___-___). Although PHMSA did "not have specific data with which to quantify the estimated safety benefit of sooner repairs," it relied on the average $23 million cost of an incident to conclude that preventing 2.2 incidents in a 15-year period would justify the cost savings. *Id.* at 124-25 (JA___-___).

b. Several commenters asked PHMSA to provide greater specificity about which cracks require immediate repair. Notably, petitioner advocated for "calculat[ing] a failure pressure and then apply[ing] a sufficient safety factor," as PHMSA does for other defects. PHMSA-2011-0023-0407 attach. 1, at 93-94 (JA___-___). At the advisory committee meetings, PHMSA agreed to revise its approach in this manner. PHMSA proposed adopting a standard by which immediate repair was required if the predicted pressure at which a crack would cause a pipeline to fail was within 1.25 times the maximum allowable pressure of the pipeline—rather than petitioner's more lenient suggestion of "1.1 times the [maximum pressure]," *id.* at 95 (JA___)—given uncertainty about the new testing technology's precision. PHMSA-2011-0023-0657 attach. 2, at 157, 160 (JA___, ___). The committee

endorsed the 1.25 ratio, while recommending that PHMSA consider whether it could adopt a 1.1 ratio. PHMSA-2011-0023-0656, at 49 (JA___).

Next, some commenters wanted to exclude longitudinal seams formed by high-frequency electric resistance welding (but not low-frequency or other welding methods) from the immediate repair criteria, but PHMSA disagreed "[b]ased on incident investigation, experience, and data." PHMSA-2011-0023-0657 attach. 5, at 58 (JA___). The agency cited data demonstrating that, between 2010 and 2017, there were nearly as many incidents associated with high-frequency welded seams as with low-frequency welded seams. *Id.* at 59 (JA___); *see* PHMSA-2011-0023-0767, at 1-2 (JA___-___) (categorizing incidents). The committee endorsed the provision, as narrowed in certain respects, but still including high-frequency welded seams. PHMSA-2011-0023-0656, at 50 (JA___).

Last, petitioner questioned the basis for PHMSA's proposal to treat all "dents that have any indication" of metal loss or cracking as immediate repair conditions, arguing that not every dent required such prioritization. PHMSA-2011-0023-0407 attach. 1, at 91 (JA___). In accord with petitioner's alternative proposal during committee discussions, *see* PHMSA-2011-0023-0447, at 6-7 (JA___-___), PHMSA suggested narrowing the dents that

require immediate action by creating a hierarchy based on how the dent is oriented and whether an engineering analysis shows that the dent exceeds strain levels. PHMSA-2011-0023-0657 attach. 2, at 190 (JA___).

To promote consistency, PHMSA set forth an integrated multi-step engineering assessment for operators to evaluate whether dent repairs can be deferred, PHMSA-2011-0023-0657 attach. 2, at 147-49 (JA___-___), drawing on procedures previously allowed by PHMSA, *see* PHMSA-2011-0023-0775, at 15 (JA___); *see also* PHMSA-2011-0023-0660 attach. 7, at 295 (JA___) (noting that "PHMSA has gained confidence in applying [these] techniques to analyze dent defects"). As part of the process, operators predict the amount of time that it would take for the dent to cause the pipeline to fail, with a safety factor to determine when to reassess if the dent remains safe. 87 Fed. Reg. at 52,271 (JA___). For example, if the operator calculates 10 years until failure, a safety factor of 2 would require reassessment in five years, while a safety factor of 5 would require reassessment in two years. PHMSA provided a "safety factor of 2," PHMSA-2011-0023-0657 attach. 2, at 149 (JA___), and the committee voted in favor of "[r]evis[ing] the immediate condition for dent[s]" and

"prioritiz[ing] repair criteria" as PHMSA suggested, PHMSA-2011-0023-0656, at 47 (JA___).

c. In line with the public comments and committee vote, the final rule provides that cracks and crack-like anomalies must be repaired when their "predicted failure pressure" is "less than 1.25 times [maximum pressure]." 87 Fed. Reg. at 52,272 (JA___); *see* 49 C.F.R. § 192.714(d)(1)(v)(C). Given the "uncertainty" surrounding "the accuracy of [new testing] technology" allowed by the rule, PHMSA found it appropriate to use "more conservatism in the cracking criteria." 87 Fed. Reg. at 52,248 (JA___). PHMSA concluded that a 1.1 ratio "would not provide an adequate safety margin due to factors including the accuracy of tool results." *Id.* (JA___). PHMSA therefore set the safety ratio at 1.25 times the maximum pressure, the same ratio used in other provisions. *Id.* (JA___). As indicated in the notice of proposed rulemaking, 81 Fed. Reg. at 20,756 (JA___), PHMSA did not change the catchall provision for general metal loss anomalies with a predicted failure pressure at or below "1.1 times [maximum pressure]," 87 Fed. Reg. at 52,271-72 (JA___-___).

The final rule also explained that "corrosion affecting a longitudinal seam" is a "time-sensitive integrity threat[]." 87 Fed. Reg. at 52,261 (JA___).

Low- and high-frequency welds warranted immediate repair because "historically, [these] seams . . . are more likely to fail due to latent manufacturing defects." *Id.* at 52,252 (JA___). Some commenters asked to treat these welding methods differently, *id.* at 52,250 (JA___), but evidence showed that "[high-frequency welded] seams can be prone to many of the same issues that occurred for [low-frequency welding]," PHMSA-2011-0023-0680 attach. 17, at 31 (JA___). PHMSA opted to treat these seams alike, noting that the failure at San Bruno resulted from a defective longitudinal seam that was incorrectly classified by the operator. *See* 87 Fed. Reg. at 52,228, 52,261 & n.53 (JA___, ___ & n.53). PHMSA, however, limited the provision by requiring immediate repair only when "the predicted failure pressure . . . is less than 1.25 times [maximum pressure]." *Id.* at 52,272 (JA___); *see* 49 C.F.R. § 192.714(d)(1)(iv).

Finally, PHMSA revised the dent repair criteria "as recommended by [the committee]." 87 Fed. Reg. at 52,249 (JA___). With petitioner's support, *see* PHMSA-2011-0023-0451, at 7, 53-54 (JA___, ___-___), the rule prescribes a specific assessment method by which operators can determine whether a dent exceeds critical strain levels and when to reassess that dent "to ensure that anomalies do not grow to critical sizes," 87 Fed. Reg. at 52,259 (JA___);

see 49 C.F.R. § 192.712(c). The reevaluation interval depends in part on the safety factor. In that regard, PHMSA noted that, while the rulemaking was ongoing, an industry consensus standard endorsed a safety factor between 2 and 5. 87 Fed. Reg. at 52,249 (JA___). To ensure an adequate safety margin, PHMSA determined that operators must use "a reassessment safety factor of 5 or greater." *Id.* at 52,271 (JA___). Selecting the more protective number was "consistent with public safety" and reflected that the testing technology still lacked sufficient precision. *Id.* at 52,249 (JA___).

In analyzing the costs and benefits of the final rule, PHMSA explained that "existing regulations" obligate operators to repair defects and identify timeframes for certain defects, with a general requirement to promptly address defects that "in judgement [sic] of the operator require immediate action." PHMSA-2011-0023-0637, at 40 (JA___). In light of these "baseline requirements" and industry practice, the rule therefore would "not impose new requirements or costs for these repairs." *Id.* at 41 (JA___). Overall, PHMSA calculated an incremental cost of $2.7 to $6.3 million per year associated with requiring repairs to be made on an accelerated timeline. *See id.* at 42-45 (JA___-___). On the other side of the ledger, the rule "will ensure the prompt remediation of anomalous conditions that could

potentially impact people, property, or the environment commensurate with the severity of the defects." *Id.* at 20 (JA___). PHMSA lacked "specific data with which to quantify the estimated safety or environmental benefits of accelerated repairs" but noted that the rule "will improve safety and reduce the prevalence of incidents," which occur at an average rate of 105 per year and a cost of nearly $1.6 million per incident. *Id.* at 45-46 (JA___-___).

d. PHMSA denied petitioner's request for reconsideration of the repair criteria provisions. PHMSA highlighted that the immediate repair criteria "were carefully selected, and their nuance calibrated, to provide robust protection from failure mechanisms of the sort that could result in another San Bruno-scale incident." PHMSA-2011-0023-0649, at 3 (JA___). Consistent with "other regulatory safety factors," the "1.25 times [maximum pressure] criterion" for cracks provides the requisite "safety margin that can account for, among other things, predicted failure pressure calculation error." *Id.* at 3-4 (JA___-___). PHMSA was willing to consider "adjusting these limits as more comprehensive data becomes available demonstrating the technologies are proven." *Id.* at 5 n.14 (JA___ n.14).

Petitioner claimed that high-frequency welding has "a significantly lower risk profile" than low-frequency welding and disputed the agency's

data showing high incident rates for both. PHMSA-2011-0023-0649, at 11-12 (JA___-___). Citing reports referenced in the final rule, 87 Fed. Reg. at 52,248 n.33 (JA___ n.33), PHMSA reiterated that "[high-frequency welded] pipe can be susceptible to similar manufacturing flaws found in [low-frequency welded] pipe" and that "[high-frequency welded] pipe has continued to experience seam failures (albeit admittedly at a lower rate than [low-frequency welded] pipe)," PHMSA-2011-0023-0649, at 12 (JA___). The agency determined that "failures on [high-frequency welded] pipe can be a significant safety risk meriting inclusion as an immediate repair criteri[on]" based on the "historical incidents" and expert data. *Id.* at 13 (JA___).

PHMSA noted that the "dent repair evaluation procedures" had been included at petitioner's request to replace "the one-size-fits-all-approach" under which operators must immediately fix dents with any indication of metal loss or cracking. PHMSA-2011-0023-0649, at 8 (JA___). PHMSA described that the "reassessment safety factor is an integral element" and that, when presented with an industry consensus standard "recommending use of factors between 2 and 5," PHMSA "adopted the more conservative reassessment safety factor of 5 as a baseline." *Id.* at 8-9 (JA___-___). As the agency explained, it "selected the more conservative safety factor value in

light of the potential for significant variations among" calculations of how long the pipe would last with the dent. *Id.* at 9 (JA___).

3. Pipeline Assessment Provision

a. PHMSA also determined that the preexisting regulatory scheme did not adequately address a type of cracking called "stress corrosion cracking" that results from the interaction between a pipeline under high pressure (stress) and a corrosive environment. *See* 81 Fed. Reg. at 20,781 (JA___) (defining as "cracking induced from the combined influence of tensile stress and a corrosive medium"). Stress corrosion cracking often propagates as clusters of cracks on the outside of a pipe that can expand and link together to form larger cracks. *See id.* at 20,818 (JA___) ("These cracks can grow or coalesce to affect the integrity of the pipeline."). PHMSA documented "numerous pipeline failures" caused by stress corrosion cracking, with examples across the country between 2003 and 2008. *Id.* at 20,781 (JA___).

One difficulty with detecting and remedying this form of cracking is that most pipelines are buried underground. PHMSA sought to standardize how operators should go about determining whether this type of cracking is present and needs remediation in pipes in high consequence areas (referred to as "covered pipeline segment[s]," 49 C.F.R. § 192.903) by incorporating

the steps of an industry consensus standard more explicitly. The steps involve pre-assessment data collection and evaluation, above-ground surveys, direct examinations of the buried pipe, and post-assessment mitigation. 81 Fed. Reg. at 20,818 (JA___). At the direct examination step, operators dig up the pipe for a visual inspection, and their choice of proper "excavation locations" is important to increase the likelihood that they will catch stress corrosion cracking if it is present. *Id.* (JA___). With reference to the industry standard's guidance about selecting "potential pipeline segments" and "dig sites within those segments," *id.* at 20,821 (JA___), PHMSA proposed to have operators conduct "a minimum of three direct examinations within the [stress corrosion cracking] segment at locations determined to be the most likely for [stress corrosion cracking] to occur," *id.* at 20,845 (JA___).

PHMSA emphasized that these changes would largely entail adding more specificity to existing requirements by adopting an industry consensus standard that "ha[s] been used successfully since the mid-2000s." PHMSA-2011-0023-0117, at 72 (JA___). The "incremental cost to operators from incorporating" a widely used standard would not be significant, particularly when direct assessment methods are not used with frequency. *Id.* at 71-72

(JA___-___). And this standard reflected an industry consensus that "[m]ost operators [were] already successfully utiliz[ing]." *Id.* at 72 (JA___).

b. At the committee meeting, PHMSA explained that incorporating the industry standard would "provide improved and more consistent" results. PHMSA-2011-0023-0657 attach. 3, at 147 (JA___). In some respects, the rule would provide more detail than the standard—which does not, for example, fix the number of digs operators should perform—but PHMSA considered this precision necessary "to address specific issues that could adversely affect" outcomes. *Id.* at 148 (JA___). The committee endorsed the proposal, including a minimum of three digs. PHMSA-2011-0023-0656, at 21 (JA___).

c. PHMSA's final rule adopted the direct assessment procedure derived from the industry consensus standard minimally supplemented "with additional requirements to address issues [the agency] has observed." 87 Fed. Reg. at 52,244 (JA___). Most relevant here, "[a]n operator's plan for direct examination must include a minimum of three direct examinations within the [stress corrosion cracking] segment." *Id.* (JA___). Evidence in the record showed that conducting "3 excavations" at properly chosen locations would "drop the probability of [stress corrosion cracking] from 90% to 1%." PHMSA-2011-0023-0763 (Francois Ayello et al., NACE Int'l Paper

No. 9346, *How Many Excavations Are Required to Confirm the Absence of SCC on a Pipeline?* 5 (2017) (JA___)). The final rule thus prescribes a minimum of three digs "within the covered pipeline segment spaced at the locations determined to be the most likely for [stress corrosion cracking] to occur." 87 Fed. Reg. at 52,276 (JA___); *see* 49 C.F.R. § 192.929(b)(3).

PHMSA further weighed the costs and benefits of imposing these requirements. The agency explained that the changes primarily bring the regulations up to date with "national consensus standards" and current industry practice. *See* PHMSA-2011-0023-0637, at 24 (JA___). The "incremental cost . . . would be negligible" because "[m]ost operators already successfully utilize [the industry] standards" and had been doing so for decades. *Id.* (JA___). Although the rule clarifications "are not anticipated to result, on their own, in measurable changes in the risk of pipeline releases, incidents or other quantifiable benefits," they would "continue to promote public safety and optimal transmission pipeline operation and management" while providing clarity to the regulated industry. *Id.* (JA___).

d. PHMSA disagreed that a slight difference in language between the proposed and final rules had any material effect. Whereas the proposed rule and the final rule's preamble referred to three digs within a "[stress

corrosion cracking] segment," the operative regulatory text referred to three digs within a "covered pipeline segment." PHMSA-2011-0023-0649, at 15 (JA___). PHMSA explained that the regulation at issue resides in a subpart of the Code of Federal Regulations governing "covered pipeline segments" and that the term "covered pipeline segment" is used consistently throughout that subpart and even within the regulation itself, in contrast to the undefined term "[stress corrosion cracking] segment." *Id.* (JA___). Given that both "the proposed and final versions" of the rule focus on picking three dig sites to increase the likelihood of discovering stress corrosion cracking, PHMSA failed to perceive "a substantive difference." *Id.* (JA___).

SUMMARY OF ARGUMENT

This case involves pipeline safety rules that were issued in response to incidents like the events in San Bruno, California, where a pipeline exploded in a residential neighborhood, claiming eight lives, causing serious injury to 60 other individuals, and destroying or damaging more than 100 homes. PHMSA undertook a comprehensive effort to revise its regulations to reduce pipeline failures by, as relevant here, preventing the internal corrosion of pipes, prescribing the time to repair defective pipes, and standardizing the methods to find pipe defects.

PHMSA complied with applicable statutory requirements in promulgating the challenged provisions. PHMSA described the proposed substantive changes and enumerated the rule's expected costs and benefits. Members of the public and an expert advisory committee had ample opportunity to weigh in on the rule, and PHMSA took their comments and recommendations into account in finalizing the rule and its accompanying risk assessment. That sort of robust public discourse is exactly what this Court required in *GPA Midstream Association v. U.S. Department of Transportation*, 67 F.4th 1188 (D.C. Cir. 2023).

Petitioner's challenges to specific provisions lack merit and overlook key aspects of the rulemaking. PHMSA implemented changes to the internal corrosion provision that undercut petitioner's arguments. Petitioner largely ignores that revisions to the repair criteria provisions were often made at petitioner's urging and were supported by evidence in the record about appropriate safety margins. And the difference in language between the proposed and final pipeline assessment provision does not have the material effect that petitioner seeks to attribute to it.

At bottom, the changes to the pipeline safety regulations challenged here reflect PHMSA's careful calibration of the rule's safety benefits and

consideration of the rule's economic impacts. The petition for review should be denied.

STANDARD OF REVIEW

The challenged provisions of PHMSA's final rule may not be set aside unless they are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A); *see* 49 U.S.C. § 60119(a)(3). This standard is "highly deferential" and "presumes agency action to be valid." *American Trucking Ass'ns v. Federal Motor Carrier Safety Admin.*, 724 F.3d 243, 245 (D.C. Cir. 2013) (quoting *American Wildlands v. Kempthorne*, 530 F.3d 991, 997 (D.C. Cir. 2008)).

ARGUMENT

I. PHMSA Complied with Procedural Requirements and This Court's Case Law in Promulgating the Pipeline Safety Rule

A. PHMSA Followed Rulemaking Procedures that Allowed Ample Opportunity for Robust Public Debate

Following several major pipeline failures, including the San Bruno, California explosion in 2010, PHMSA committed to updating its pipeline safety regulations to help prevent future incidents. The proposed revisions sought to ensure that operators were taking sufficient steps to detect potential threats and to take corrective actions before pipelines fail or

further devolve. PHMSA readily satisfied the applicable procedural requirements to facilitate public participation on the challenged rule.

The proposed rule and preliminary risk assessment discussed the proposed regulatory changes and "identif[ied] the costs and benefits associated with the proposed standard." 49 U.S.C. § 60102(b)(3)(B). PHMSA presented its proposal and supporting analysis to the expert advisory committee, which, with minor recommended tweaks at the margins, endorsed the proposed provisions as "technical[ly] feasib[le], reasonable[], cost-effective[], and practicab[le]." *Id.* § 60115(c)(2). Based on input from the public and the committee, *see id.* § 60102(b)(2)(F)-(G), and consistent with the committee's recommendations, PHMSA issued the final rule and a risk assessment detailing the agency's "determination that the benefits, including safety and environmental benefits, of the intended standard justify its costs," *id.* § 60102(b)(5). PHMSA did exactly what the statute required.

B. Petitioner's Broad Procedural Attacks on the Rulemaking Fail

1. Petitioner, a pipeline trade association, was an active participant throughout the rulemaking. Petitioner submitted rounds of comments at every stage of the proceedings, and many of its comments formed the basis for refinement in the agency's approach.

Petitioner does not challenge the vast majority of the new safety regulations but insists that, on a small handful where it dislikes the outcome, PHMSA did not follow the requisite procedures. In particular, petitioner challenges the regulatory provisions directed to preventing the internal corrosion of pipes, prescribing the time to repair defective pipes, and standardizing the methods to find pipe defects. Petitioner seeks to portray the agency as having failed to consider relevant evidence or engage in the back-and-forth process contemplated by the statute with respect to the challenged provisions. But the record tells a different story.

In response to the proposed rule, the advisory committee recommended that PHMSA limit the internal corrosion provision to operators transporting corrosive gas; PHMSA agreed and made implementing changes. *See* 87 Fed. Reg. at 52,238 (JA___). Commenters asked that the immediate repair of cracks and crack-like anomalies turn on a failure pressure ratio; PHMSA agreed and adjusted its approach. *See id.* at 52,247-48 (JA___-___). Commenters argued that corrosion of high-frequency welded seams is not serious enough to be repaired immediately; PHMSA disagreed but restricted the provision to instances in which the pipe is near failing. *See id.* at 52,250-52 (JA___-___). Commenters advocated for a

method to assess and deescalate dent repairs; PHMSA agreed and prescribed a safe mechanism. *See id.* at 52,249-50 (JA___-___). Most commenters supported incorporating the industry consensus standard widely in use to check for stress corrosion cracking; PHMSA agreed. *See id.* at 52,244 (JA___). This significant public discourse and meaningful agency consideration signify a functioning system.

Petitioner likewise errs in arguing that the agency did not conduct the requisite assessment of the costs and benefits of the internal corrosion, defect repair, and defect detection provisions. In the preliminary risk assessment, PHMSA acknowledged limitations and uncertainties, PHMSA-2011-0023-0117, at 135-36 (JA___-___), and "exposed its methodological assumption[s]" and supporting data to "peer review and public comment," *GPA Midstream Ass'n v. U.S. Dep't of Transp.*, 67 F.4th 1188, 1197 (D.C. Cir. 2023). And the agency adapted to valid objections. For example, petitioner and other commenters "raised legitimate concerns about PHMSA's heavy reliance" on certain "assumptions in the [preliminary] benefits analysis." PHMSA-2011-0023-0637, at 9 (JA___). In response, PHMSA's final analysis concentrated on a qualitative assessment because "data limitations highlighted by commenters made it difficult to quantify the

rule's benefits with a reasonable level of confidence." *Id.* at 9-10 (JA___-___). Petitioner is simply wrong when it asserts that "PHMSA's explanation for why quantitative analysis was infeasible ignores that it *already* provided a preliminary cost-benefit assessment." Pet'r Br. 50.

The agency not only "explain[ed] why any unquantified benefits cannot reasonably be quantified," but also "quantif[ied some] of the benefits of the standard" to guide its decision-making. *GPA Midstream*, 67 F.4th at 1200. In general, for each of the challenged provisions, PHMSA reviewed the relevant incidents and calculated their total and average costs to assess the extent of harms the improved regulations were expected to address. *See, e.g.*, PHMSA-2011-0023-0637, at 34 (JA___). Based on these numerical metrics and quantifiable measures, as well as a qualitative analysis, the agency reasonably concluded that the safety and environmental "benefits . . . will justify any associated costs." 87 Fed. Reg. at 52,226 (JA___). This considered comparison of costs and benefits is all that the statute requires. *See* 49 U.S.C. § 60102(b)(5) (requiring "a reasoned determination that the benefits . . . of the intended standard justify its costs").

2. Petitioner devotes much of its brief to arguing that the agency's actions in this case parallel those that this Court held procedurally deficient

in *GPA Midstream*, 67 F.4th at 1200. These contentions largely boil down to the mistaken notion that the agency must itemize costs and benefits on a subsection-by-subsection basis. But the statute nowhere demands that level of granularity. It simply provides that PHMSA identify and consider "reasonably identifiable or estimated" costs and benefits "expected to result from implementation or compliance with the standard," 49 U.S.C. § 60102(b)(2)(D)-(E), and make "a reasoned determination that the benefits . . . of the intended standard justify its costs," *id.* § 60102(b)(5). That language sensibly allows PHMSA to evaluate the aggregate effects of similar, mutually reinforcing regulatory provisions.

Nor can petitioner find support in *GPA Midstream* for its assertion that the agency must comply with impracticable requirements absent from the statute. In *GPA Midstream*, this Court concluded that the agency never gave notice that a proposed rule requiring installation of shut-off valves would apply to an entire category of pipelines called gathering lines. 67 F.4th 1188. The notice of proposed rulemaking and the preliminary risk assessment in that case focused exclusively on a different type of pipeline called a transmission line and "contained no data, analysis, or conjecture about the costs and benefits of applying the proposed safety standard to

gathering facilities." *Id.* at 1196. Given the agency's statutory duty to consider whether a safety standard is appropriate "for the particular type of pipeline transportation or facility," 49 U.S.C. § 60102(b)(2)(B), this Court determined that it was error to say "nothing about the practicability or the costs and benefits of regulating the gathering sector," *GPA Midstream*, 67 F.4th at 1196-97.

In *GPA Midstream*, this Court vacated the final rule only as to gathering lines, concluding that the cost-benefit analysis failed as to those pipelines. 67 F.4th at 1201. The Court stated that a footnote in the final risk assessment asserting that "gathering lines and transmission pipelines pose a comparable risk" of failure did not account for differences that could "make compliance far more difficult and expensive" for gathering lines. *Id.* at 1199. The agency conceded that "there may be a difference in cost" between these two groups. *Id.* at 1200. Further, the agency's "qualitative discussion of the benefits d[id] not say anything about gathering pipelines." *Id.*

This case differs from *GPA Midstream* both in general terms and in the particulars. The rule at issue in this case applies only to transmission lines, and even petitioner does not contend that PHMSA "remain[ed] silent" about a large swath of pipelines or facilities subject to regulation. *GPA*

Midstream, 67 F.4th at 1197. Nor did PHMSA rely on a bare, untested assumption that data and analysis applicable to one class of pipelines could simply be carried over to a distinct class of pipelines. *Id.* at 1199. Instead, as the discussion above illustrates, PHMSA provided notice of the changes it was contemplating and an assessment of the associated costs and benefits. The regulatory provisions were refined in response to feedback from the public and the advisory committee, and the risk assessment was adjusted accordingly. In short, the rule challenged in this case was a product of "the process of public deliberation required by law." *Id.* at 1197.

Petitioner's other invocations of *GPA Midstream* only underscore its overreading of that decision. Petitioner asks this Court to disregard "PHMSA's explanation for why quantitative analysis was infeasible." Pet'r Br. 50. As an initial matter, PHMSA's risk assessments in this case include meaningful quantification of costs and benefits. In any event, *GPA Midstream* recognized that the agency may "explain why any unquantified benefits cannot reasonably be quantified," 67 F.4th at 1200, as is commonplace in executive regulatory analyses, *see, e.g.*, Office of Mgmt. & Budget, *Circular No. A-4*, at 40 (Nov. 9, 2023), https://perma.cc/6UM3-LYVR. Whereas the agency in *GPA Midstream* failed to offer elaboration in

determining that quantification was not feasible, *see* 67 F.4th at 1200, PHMSA in this case fully justified reliance on a qualitative assessment, particularly when PHMSA quantified costs and benefits in its preliminary assessment but changed tack in response to comments from petitioner and others questioning the certainty of relying on limited data and subjective judgment, *see* PHMSA-2011-0023-0637, at 9-10 (JA___-___).

Petitioner is also wrong to attempt to transform the fact-specific finding in *GPA Midstream* into a free-floating obligation for PHMSA to compute "the probability of a rupture" as part of every cost-benefit analysis. Pet'r Br. 54 (quoting *GPA Midstream*, 67 F.4th at 1201). That metric was relevant in *GPA Midstream* because it called into question the magnitude of avoided damages, which were based on a study assuming the worst-case scenario and a 100% failure rate. *See* 67 F.4th at 1201. Here, by contrast, PHMSA's estimates do not depend on how to translate the findings and figures of a study into the real world. Instead, PHMSA calculated per-incident costs based on available "detailed data" about actual incidents, *id.*, and used those figures to inform its cost-benefit analysis.

II. Petitioner's Challenges to Specific Provisions Lack Merit and Ignore Critical Aspects of the Rulemaking

As demonstrated, PHMSA complied fully with statutorily required rulemaking procedures. Petitioner likewise has no valid basis to object to the handful of provisions on which its judgment and the agency's judgment ultimately diverged. Those provisions address requisite controls to prevent internal corrosion, the time in which operators must repair defective pipelines, and the methods operators must employ to find pipeline defects.

In particular, petitioner raises challenges to five provisions. First, petitioner suggests that PHMSA did not adequately limit the internal corrosion provision to operators transporting corrosive gas. Second, petitioner dislikes that PHMSA chose a 1.25, rather than a 1.1, times maximum pressure ratio to determine when operators must immediately repair cracks. Third, petitioner objects to PHMSA's decision to include corrosion along a high-frequency welded seam as an immediate repair condition. Fourth, petitioner contends that PHMSA struck the wrong balance in specifying which dents do not require immediate repair. Fifth, petitioner quibbles over whether a slight difference in adopted terminology for performing three digs on one segment of pipeline has any material effect. None of these challenges succeeds.

A. Changes to the Internal Corrosion Provision Implemented as Part of the Rulemaking Undercut Petitioner's Arguments

As explained in the final rule, PHMSA revised the internal corrosion provision in response to the advisory committee's concern that, under the proposed rule, operators would have to devise a monitoring and mitigation program for internal corrosion even if they are not transporting "corrosive gas." 87 Fed. Reg. at 52,238 (JA___). PHMSA made multiple alterations to the rule—including several proposed by petitioner—to clarify that operators must be cognizant that changes in the makeup of the gas or in the conditions of the system could cause a gas stream to become corrosive. *See id.* at 52,270 (JA___). But the rule does not require operators to implement a formal monitoring and mitigation program if their gas streams merely include *potentially* corrosive constituents, like carbon dioxide and liquid water, with no corrosive effects. *See id.* (JA___).

1. Against this backdrop, petitioner's claim that PHMSA did not comply with its statutory duty "to 'consider' [the committee's] recommendation to limit [the provision] to corrosive gas" is perplexing. Pet'r Br. 42 (quoting 49 U.S.C. § 60102(b)(2)(G)). As an initial matter, the statute says that the agency must "consider" committee recommendations, not that

it must agree with committee recommendations. *See* Consider, *Merriam-Webster*, https://perma.cc/2HWK-7HSJ (last visited Feb. 26, 2024) (defining "consider" as "to think about carefully" or "to take into account"). In any event, as explained, PHMSA made modifications that took into account the committee's (and petitioner's) comments. Petitioner simply does not like where the agency landed.

Petitioner errs in attempting to dismiss each difference between the proposed and final rules as "a legal nullity." Pet'r Br. 41-43 & n.13 (quotation marks omitted). Petitioner's apparent belief that the final rule requires operators to comply with all formal monitoring requirements whenever potentially corrosive constituents are present in their gas streams is mistaken. By its plain terms, the final rule mandates a monitoring program for operators whose gas contains "corrosive constituents" that produce "corrosive effects." 87 Fed. Reg. at 52,270 (JA___). The agency confirmed that plain understanding of the regulation in its letter denying petitioner's request for reconsideration: the qualifications in the final rule make clear that a monitoring program is required only when potentially corrosive constituents "could be expected to result in internal corrosion—such that the operator is transporting gas which is corrosive." PHMSA-2011-0023-0649, at

10 (JA___). At base, petitioners seem to disregard that the rule serves to "enhanc[e] awareness of the safety dimension of the presence of constituents in gas streams that may make the gas corrosive." *Id.* (JA___).

2. Petitioner does not take issue with the preliminary assessment for the internal corrosion provision but mistakenly claims that the final assessment did not "conduct any cost-benefit analysis *at all*." Pet'r Br. 48. In fact, PHMSA explained that costs would be minimal because operators already monitor gas quality. *See* PHMSA-2011-0023-0637, at 30 (JA___). Whatever probative value petitioner's data about equipment costs may have had when the proposed rule "require[d] new equipment to be installed," Pet'r Br. 48, PHMSA had no need to address that data because PHMSA removed "equipment" in the final rule and allowed operators to use "gas-quality monitoring methods," such as receiving data from an upstream operator who already has monitoring equipment, 87 Fed. Reg. at 52,238 (JA___). As the agency explained, the final rule is directed to ensuring that safety personnel be given access to "gas quality data" that is already being collected for other purposes. *Id.* (JA___).

And PHMSA substantiated its observation that operators already have "monitoring systems," 87 Fed. Reg. at 52,238 (JA___), and "infrastructure in

place" as part of "existing practice," PHMSA-2011-0023-0637, at 30 (JA___). The record includes 11 gas tariffs (8 of which are from petitioner's members) with monitoring requirements akin to those in the final rule. To take an example, one tariff provides that the operator "will install, maintain and operate at its own expense, at or near each Receipt or Delivery Point, a measuring station properly equipped with meters and other necessary measuring equipment." PHMSA-2011-0023-0756 attach. 3, at 1 (JA___). And the operator will deliver gas containing less than specific quantities of water, carbon dioxide, and hydrogen sulfide, *id.* at 5-6 (JA___-___), the same constituents included as potentially corrosive in the rule. PHMSA had a sound basis to conclude that the rule "is not expected to add any incremental compliance activities or costs." PHMSA-2011-0023-0637, at 30 (JA___).

At the same time, PHMSA did not discount that there are "compliance costs" which are "hard to determine" because they vary markedly between operators who employ different "compliance strategies." PHMSA-2011-0023-0637, at 32 (JA___). But that statement did not override PHMSA's evidence-supported determination that incremental costs will be negligible because operators are already gathering the relevant information. *See id.* at 30 (JA___). Furthermore, based on a survey of 149 corrosion incidents from

2010 to 2021, PHMSA determined that on average each incident results in more than $1.3 million in costs, "apart from unquantified environmental impact associated with releases and incidents." *Id.* at 34 (JA___). This quantitative and qualitative benefits assessment, which petitioner tellingly does not contest, undergirds the agency's judgment that the "benefits . . . justify any associated costs." 87 Fed. Reg. at 52,226 (JA___).

B. PHMSA Provided Proper Notice of the Repair Criteria Provisions and Reasonably Refined Them During the Rulemaking

Petitioner challenges three provisions that relate to the immediate repair of certain anomalies—one involving cracks, one involving metal loss along certain pipe seams, and one involving dents. The specific arguments as to each provision are discussed in turn.

1. a. First, from the early stages of the rulemaking, PHMSA indicated that it was contemplating how to manage the repair of cracks. In the notice of proposed rulemaking, PHMSA included "[a]ny indication" of significant "cracks or crack-like flaws" or "series of interacting cracks" as a condition that operators would need to repair immediately. 81 Fed. Reg. at 20,826, 20,839 (JA___, ___). Other "crack[s] or crack-like defect[s]" would have to be repaired within one or two years under the proposed rule. *Id.* at 20,756

(JA___). Commenters suggested changes to PHMSA's categorization of "cracks or crack-like defects." 87 Fed. Reg. at 52,247 (JA___). The fact that "[n]umerous commenters—including [petitioner] here—filed comments that were critical of" the cracking proposal demonstrates that PHMSA provided adequate notice and opportunity to comment. *Northeast Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936, 952 (D.C. Cir. 2004).

The provision codified in the final rule sprang in part from petitioner's own suggestion. Petitioner requested that PHMSA allow operators to rely on "failure pressure" and to repair cracks only when the pipe approaches failure. PHMSA-2011-0023-0407 attach. 1, at 93-94 (JA___-___); 87 Fed. Reg. at 52,247 (JA___) ("[Petitioner] also recommended that PHMSA adopt a failure pressure ratio approach for cracking."). Petitioner proposed that operators should not have to act until the pipe's pressure is within 10% of failure (*i.e.*, a ratio of 1.1 times maximum pressure), PHMSA-2011-0023-0407 attach. 1, at 95 (JA___), while other commenters suggested a ratio of 1.25 times maximum pressure, 87 Fed. Reg. at 52,247 (JA___).

An analogy is illustrative. Suppose that a car's maximum allowable speed is 100 mph. A safety agency could require manufacturers to make the car's windshield able to withstand speeds up to 110 mph or 125 mph. Here,

PHMSA's decision is analogous to rejecting petitioner's proposal of 110 mph and instead choosing 125 mph to be more safety protective. PHMSA concluded that this larger "safety margin" was warranted especially because the accuracy of the new testing technology was not yet sufficiently established, 87 Fed. Reg. at 52,248 (JA___), and the final rule provides that an operator must immediately repair a "crack or crack-like anomaly" where the "predicted failure pressure . . . is less than 1.25 times the [maximum pressure]," *id.* at 52,272 (JA___).

Having used the public comment period to persuade PHMSA to calibrate immediate repair requirements to failure pressure, petitioner cannot now fault PHMSA for acceding to that request. *See South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F.3d 882, 891 (D.C. Cir. 2006). Indeed, petitioner never grapples with the provision's development or petitioner's role in the process. Petitioner notes that the preliminary risk assessment did "not mention" this provision, Pet'r Br. 38, but that is neither surprising nor problematic. At the time, PHMSA was proposing to address cracks and crack-like anomalies in a slightly different manner. Petitioner does not—and could not—dispute that PHMSA thoroughly analyzed the costs and benefits of the then-current proposal. *See* PHMSA-2011-0023-0117, at 73-78, 118-25

(JA___-___, ___-___). Any suggestion that PHMSA could not thereafter fine-tune the rule (and the accompanying risk assessment) in response "to the material comments and concerns that [we]re voiced" would undermine "a central purpose of notice-and-comment rulemaking." *Make The Rd. N.Y. v. Wolf*, 962 F.3d 612, 634 (D.C. Cir. 2020).

b. Petitioner's related argument that the crack-repair provision "fails the logical-outgrowth test," Pet'r Br. 44, cannot be reconciled with petitioner's own conduct. A final rule is a logical outgrowth of the proposed rule "if interested parties should have anticipated that the change was possible." *Northeast Md. Waste Disposal Auth.*, 358 F.3d at 952 (quotation marks omitted). There can be no doubt that that standard is met here because petitioner was the one who proposed the change. And petitioner was not alone—multiple commenters discussed "cracks or crack-like defects," and some even "suggested requiring repairs at . . . a predicted failure pressure of less than 1.25 times [the maximum pressure]." 87 Fed. Reg. at 52,247 (JA___). It makes sense that PHMSA received scores of submissions on this issue when the agency invited public input on which anomalies, including forms of "cracking" and "crack-like defect[s]," should be treated as immediate repair conditions. 81 Fed. Reg. at 20,756 (JA___).

Despite its own comment on the issue, petitioner contends that "interested parties, including [itself], had no way of knowing that PHMSA" was considering revisions to the repair criteria for cracks. Pet'r Br. 45. That argument rests on a misreading of one line in the rulemaking notice, which provided that PHMSA was "not proposing to change" a regulatory catchall provision characterizing any anomaly as an "immediate repair criterion [if] predicted failure pressure [is] less than or equal to 1.1 times [the maximum pressure]." 81 Fed. Reg. at 20,756 (JA___). Petitioner fails to note that the very same sentence goes on to say that "PHMSA [was] proposing several changes to enhance the repair criteria," *id.* (JA___), which perhaps explains why petitioner and others saw no barrier to submitting comments on cracks. In line with the statements in the notice, although PHMSA made changes to other repair criteria, it retained the regulatory catchall provision in the final rule. 87 Fed. Reg. at 52,271-72 (JA___-___).

c. Contrary to petitioner's assertion, PHMSA adequately "explain[ed] why 1.25 times [maximum pressure] is the right threshold" for cracks. Pet'r Br. 56. As petitioner appears not to dispute, PHMSA detailed its reasons for rejecting a ratio of 1.1 times maximum pressure (*i.e.*, just 10% above failing) as insufficient to "provide an adequate safety margin." 87 Fed. Reg. at

52,248 (JA___). PHMSA determined that a greater safety margin was appropriate because "the accuracy of [testing] technology" was still being evaluated and improved—a 25% margin was necessary to account for these imprecisions to ensure pipelines avoid operating at or near their failure pressure. *Id.* (JA___); *see* PHMSA-2011-0023-0773, at 26-28 (JA___-___) (discussing "[l]imitations of the technology" and efforts to improve accuracy). The 1.25 ratio is also used in other provisions for similar risks, and the committee endorsed it as reasonable here. *See* 87 Fed. Reg. at 52,248 (JA___); *see also* PHMSA-2011-0023-0649, at 3-4 (JA___-___) (noting that 1.25 ratio accounts for "calculation error" and reflects "other regulatory safety factors").

PHMSA's reasoned choice stands in sharp contrast to the economic prediction at issue in *Bluewater Network v. EPA*, 370 F.3d 1 (D.C. Cir. 2004) (cited at Pet'r Br. 56-57). In that case, the agency both failed to justify an assumption critical to its prediction and failed to explain how it projected the percentage of manufacturers that could optimize the advanced technology at issue within a specific timeframe. *Id.* at 21. Neither of those issues is present here. PHMSA was not making a prediction about how long it would take operators to implement advanced technology. Instead, PHMSA set the

crack-repair conditions to provide an adequate safety margin commensurate with the risk of allowing operators to use advanced testing technology.

d. Petitioner's arguments about deficiencies in the agency's analysis of costs and benefits are similarly misguided. PHMSA discussed the "new criteria to address cracking and crack-like defects" along with the other "immediate repair conditions." PHMSA-2011-0023-0637, at 20-21 (JA___-___). PHMSA noted that "existing regulations" already obligate operators to repair defects, often on a specific timeframe. *Id.* at 40 (JA___). PHMSA expected that, as a matter of industry convention, operators were already treating cracks severe enough that the pipe is approaching failure as "requir[ing] immediate action" and, thus, that the rule would "not impose new requirements or costs for these repairs." *Id.* at 40-41 (JA___-___). Put another way, because operators will repair defects that pose serious threats to avoid economic liabilities and lost operations, requiring the same by regulation would not impose additional cost burdens to make the repair. In terms of benefits, PHMSA explained that the rule would foster "the prompt remediation of anomalous conditions that could potentially impact people, property, or the environment commensurate with the severity of the defects," *id.* at 20 (JA___), with 1260 incidents that caused about $1.5 billion

in damages between 2010 and 2021, for an average of nearly $1.6 million per incident and over 100 incidents per year, *id.* at 45-46 (JA___-___).

Rather than engaging with this reasoning, petitioner misinterprets a footnote in PHMSA's denial of reconsideration as purportedly claiming that the agency need not "perform a standard-specific cost-benefit analysis." Pet'r Br. 55. That footnote, however, makes the more modest point that the agency was not obligated to consider the impact of the "1.25 times [maximum pressure] immediate crack repair criterion" separate from "other elements of this rulemaking." PHMSA-2011-0023-0649, at 4 n.11 (JA___ n.11). The agency explained that the hyper-technical precision that petitioner demands has "no basis in statute or regulation" and would not "be practicable given PHMSA's comprehensive and highly technical regulatory regime." *Id.* (JA___ n.11); *see supra* pp. 34-37. Petitioner's objections are thus off point.

2. Second, PHMSA included metal loss affecting low- and high-frequency welded seams as an immediate repair condition at every step of the rulemaking proceeding. Because the techniques to weld these longitudinal seams do not always form a robust bond, subsequent metal loss along these seams can cause the pipes to split open with greater frequency than other seam welds. *See* 81 Fed. Reg. at 20,756 (JA___). Indeed, the San

Bruno rupture was "caused by a fracture that originated in the partially welded longitudinal seam." PHMSA-2011-0023-0661, at 11 (JA___). Petitioner and members of the public commented on this issue, and the committee recommended that including both low- and high-frequency welded seams as immediate repair conditions was cost-effective, technically feasible, and reasonable. PHMSA-2011-0023-0656, at 50 (JA___). PHMSA finalized the provision, requiring operators to immediately repair metal loss affecting such seams if "the predicted failure pressure . . . is less than 1.25 times the [maximum pressure]." 87 Fed. Reg. at 52,272 (JA___).

Petitioner asserts that the agency's preliminary risk assessment was insufficient. But petitioner discounts relevant portions of that assessment on the faulty assumption that "selective seam corrosion occurs along the bond line" of low-frequency welded pipe, "*not* [high-frequency welded] pipe." Pet'r Br. 37 (quotation marks omitted). The record contradicts that contention, *see* PHMSA-2011-0023-0680 attach. 11, at 34 (JA___) ("Selective seam weld corrosion . . . has been known to occur in . . . [high-frequency welded] seams."), and PHMSA found that "[p]ipe seams formed by" both low- and high-frequency welding "are particularly vulnerable to failure due to selective seam corrosion," PHMSA-2011-0023-0117, at 73 (JA___).

Petitioner's arguments about the final rule and risk assessment fare no better. Petitioner erroneously assumes that scientific reports demonstrating the failures of high-frequency welded pipe were "referenced for the first time in [PHMSA's] denial of reconsideration." Pet'r Br. 53. In fact, the final rule's preamble provided a link to all of the reports. *See* 87 Fed. Reg. at 52,248 n.33 (JA___ n.33). Even a non-exhaustive sample of those materials confirms the well-founded concerns about manufacturing defects in both low- and high-frequency welding. *See, e.g.*, PHMSA-2011-0023-0680 attach. 16, at 5 (JA___) (explaining that "the [low-frequency] and [high-frequency] processes are inherently similar and so can develop many of the same types of anomalies"); PHMSA-2011-0023-0680 attach. 17, at 31 (JA___) (explaining that "[high-frequency welded] seams can be prone to many of the same issues that occurred for [low-frequency welding]"); PHMSA-2011-0023-0680 attach. 28, at 31 (JA___) (explaining that "early high frequency welds often exhibited much the same kinds of manufacturing defects that tended to affect [low-frequency welded seams]").

Furthermore, the record is replete with examples demonstrating high rates of pipeline incidents in both low- and high-frequency welded seams. *See, e.g.*, PHMSA-2011-0023-0767, at 1-2 (JA___-___) (enumerating 13

incidents for high-frequency welds and 24 incidents for low-frequency welds between 2010 and 2020); PHMSA-2011-0023-0657 attach. 5, at 59 (JA___) (showing 10 incidents for high-frequency welds and 15 incidents for low-frequency welds from 2010 to 2017); PHMSA-2011-0023-0719, at 2 (JA___) (discussing manufacturing defects that were discovered on high-frequency welded seams produced in 2014 and 2015). Petitioner does not challenge the agency's regulation of other welding techniques—direct current and flash welding—that in one large study were associated with *fewer* pipeline failures than high-frequency welds. PHMSA-2011-0023-0680 attach. 28, at 37 (JA___) (listing 48 failures for high-frequency welds, 40 for direct current, and 37 for flash welding).

Treating all these seams in the same way also minimizes the possibility that operators will misclassify seams and ignore even low-frequency welded seams. *See* 87 Fed. Reg. at 52,261 & n.53 (JA___ & n.53); *see also* PHMSA-2011-0023-0661, at 40 (JA___) (finding that San Bruno operator misclassified the seam type). Thus, even accepting that low-frequency welding is "more *likely* to experience metal-loss weld failures than [high-frequency welding]," Pet'r Br. 54, which PHMSA has never disputed, PHMSA-2011-0023-0649, at

12 (JA___), the agency had a sound basis to conclude that high-frequency welded seams merit inclusion as an immediate repair condition.

The profound safety benefits stemming from "reduc[ing] the prevalence of incidents" related to seams formed a critical part of PHMSA's judgment that the costs are justified, PHMSA-2011-0023-0637, at 45-46 (JA___-___), as petitioner seems to acknowledge, *see* Pet'r Br. 52 n.15. And just because petitioner disagrees with PHMSA's assessment of costs does not mean that PHMSA "fail[ed] to quantify, or even reference, [them]." Pet'r Br. 50. PHMSA noted that the costs associated with timely repairing covered "longitudinal seam[s]" (including high-frequency welded seams) would be insignificant because, under "existing regulations," operators had to address "indications and defects" that warranted "immediate attention." PHMSA-2011-0023-0637, at 40-41 (JA___-___). PHMSA reasonably concluded that the provision "clarif[ied] existing regulatory expectations," *id.* at 41 (JA___), especially when considered with the final rule's narrowed application to corrosion along a high-frequency welded seam where the pressure is within 25% of failure, 87 Fed. Reg. at 52,272 (JA___). Petitioner's protracted discussion about whether an "industry manual" requires immediate repair of metal loss on high-frequency welds, Pet'r Br. 52, is

beside the point and ignores that the final rule encompasses only those seams that show signs of approaching failure.

3. Third, the dent assessment provision similarly finds its roots in proposals from petitioner and other commenters. The notice of proposed rulemaking would have required that some dents be repaired within two years and that some be monitored, but dents with any indication of metal loss or cracking would have to be repaired immediately. 81 Fed. Reg. at 20,758 (JA___). Petitioner objected to uniformly treating those dents as immediate repair conditions. *See* PHMSA-2011-0023-0407 attach. 1, at 91 (JA___). In response, PHMSA adopted a more nuanced approach incorporating most elements of petitioner's suggestion, including by allowing operators "to perform an engineering analysis . . . for dent anomalies with metal loss." PHMSA-2011-0023-0447, at 6 (JA___). This technical enhancement allows operators to perform individual dent assessments.

Petitioner expressed support for the multi-step dent evaluation procedure that PHMSA presented to the committee and that the committee endorsed. PHMSA-2011-0023-0451, at 7, 53-54 (JA___, ___-___). As part of that procedure, operators predict the time that it would take for the dent to cause the pipeline to fail, then use a safety factor to determine when to

reassess the dent without requiring repair. 87 Fed. Reg. at 52,271 (JA___). For example, if the operator calculates a fatigue life of 10 years, a safety factor of 2 would require reassessment within five years, while a safety factor of 5 would require reassessment within two years.

Petitioner takes issue with PHMSA's decision to adopt "a reassessment safety factor of 5 or greater." 87 Fed. Reg. at 52,271 (JA___). As the agency explained, during the rulemaking proceedings, an industry consensus standard endorsed a safety factor between 2 and 5, and PHMSA opted for the top of that range to promote safety in the face of remaining uncertainties about the new testing technology, including wide disparities observed by the agency between calculation models. *Id.* at 52,249 (JA___);[1] *see* PHMSA-2011-0023-0775, at 54 (JA___) (showing different numbers for different models). The dent assessment provision showcases another instance in which petitioner urged PHMSA to take a specific approach but then disagreed with PHMSA's decision to make the provision protective of

[1] Recently published studies further support choosing a safety factor at the high end of that range. *See, e.g.*, Brian Leis et al., *Dent Strain and Stress Analyses and Implications Concerning API RP 1183 - Part I*, 3 J. Pipeline Sci. & Eng'g (2023), https://perma.cc/9RCP-M7BK.

safety. *Cf. South Coast*, 472 F.3d at 891 ("[A] party that presents a winning opinion before the agency cannot reverse its position before this court.").

Indeed, the upshot of a successful challenge on this score would be to treat *more* dents as requiring immediate repair. The challenged provision, § 192.712(c), operates as an exception, allowing operators to assess individual dents and defer repairs if the process spelled out in that provision shows that the dent can safely persist in the pipeline. The steps of the process in subsection (c) were calibrated together to establish "minimum standards for operators to calculate critical strain levels in pipe with dent anomalies or defects." 87 Fed. Reg. at 52,259 (JA___). Petitioner cannot carve off subsection (c)(9), which calculates remaining life with the safety factor that is "an integral element" in the cohesive multi-step process, PHMSA-2011-0023-0649, at 8 (JA___); nor can petitioner swap in its preferred safety factor.

Petitioner's requested relief would jeopardize safety by upsetting this reticulated method. Whereas severability would be appropriate were the Court to grant the petition for review as to other repair criteria provisions, *see Davis Cty. Solid Waste Mgmt. v. EPA*, 108 F.3d 1454, 1459 (D.C. Cir. 1997) (allowing courts to sever provisions that "operate entirely independently of one another"), if petitioner were to prevail as to the dent

assessment provision, the proper remedy would be to vacate § 192.712(c) in its entirety to permit the agency to reconsider § 192.712(c) as necessary in light of the best available information about appropriate safety levels.

C. Petitioner's Objections to the Pipeline Assessment Provision Misunderstand Its Scope and Operation

PHMSA also revised its regulations to better address a dangerous form of cracking called stress corrosion cracking, where pipelines under high pressure in a corrosive environment can develop clusters of cracks that combine to create larger cracks. *See* 81 Fed. Reg. at 20,781 (JA___). PHMSA proposed to more clearly incorporate an industry consensus standard providing a series of steps to determine whether this type of cracking is present and needs remediation. *Id.* at 20,818 (JA___). As direct assessment involves digging up the pipe to visually inspect for cracking, PHMSA proposed that operators conduct at least three digs "within the [stress corrosion cracking] segment at locations determined to be the most likely for [stress corrosion cracking] to occur." *Id.* at 20,845 (JA___).

Both the preliminary and final risk assessments explained that the incremental cost would be minimal because the changes largely bring the regulations up to date with industry standards and practice. *See* PHMSA-2011-0023-0117, at 71-72 (JA___-___); PHMSA-2011-0023-0637, at 24

(JA___). The industry consensus standard requires direct examinations at multiple dig sites to confirm whether an operator has a safety concern requiring further remedial work. *See* 87 Fed. Reg. at 52,262 (JA___). PHMSA intended that standardizing the process would promote quality, consistency, and safety, *see* PHMSA-2011-0023-0117, at 72 (JA___); PHMSA-2011-0023-0637, at 24 (JA___), and evidence before the agency showed that conducting "3 excavations" at properly chosen locations would "drop the probability of [stress corrosion cracking] from 90% to 1%," PHMSA-2011-0023-0763 (Francois Ayello et al., *supra*, at 5 (JA___)). The committee endorsed PHMSA's approach. PHMSA-2011-0023-0656, at 21 (JA___).

At base, petitioner's arguments about the cost-benefit analysis largely depend on a semantic distinction between the proposed rule's reference to three excavations "per [stress corrosion cracking] segment" and the final rule's reference to three excavations "per covered pipeline segment." Pet'r Br. 39, 58. PHMSA has already explained that it perceives no "substantive difference" between this choice of language. PHMSA-2011-0023-0649, at 15 (JA___). The final rule treats the terms interchangeably by using "covered pipeline segment" in the rule's text, 87 Fed. Reg. at 52,276 (JA___), and "[stress corrosion cracking] segment" in the preamble to refer to the same

thing, *id.* at 52,244 (JA___). And the rule focuses on choosing dig sites "spaced at the locations determined to be the most likely for [stress corrosion cracking] to occur." *Id.* at 52,276 (JA___).

PHMSA also had good reasons not to use "[stress corrosion cracking] segment" in the operative text. Petitioner itself admits that "PHMSA has never defined the term," and petitioner's proffered definition—the "pipeline segment being examined"—is unilluminating. Pet'r Br. 24. By contrast, the term "covered pipeline segment" has a well-understood meaning. The subpart of the Code of Federal Regulations at issue applies to "operator[s] of a covered pipeline segment," 49 C.F.R. § 192.907(a), and the term "covered pipeline segment" is used consistently throughout that subpart. PHMSA-2011-0023-0649, at 15 (JA___). The stress corrosion cracking direct assessment has itself long been defined as "a process to assess a covered pipeline segment." 49 C.F.R. § 192.929(a) (2004). Indeed, it is difficult to fathom why the switch to the more exact term "covered pipeline segment" in the challenged provision, § 192.929(b)(3), could have been material or unanticipated when the entire subsection, § 192.929(b), has always established requirements for "operator[s] using direct assessment . . . to

address stress corrosion cracking *in a covered pipeline segment*." 81 Fed. Reg. at 20,844 (JA___) (emphasis added).

Because the final rule in no sense "triple[s] the number of required excavations" in comparison to the proposed rule, petitioner has not identified any "additional costs" that PHMSA should have considered. Pet'r Br. 59. Nor can petitioner sustain its general claim that "PHMSA did not perform any cost-benefit assessment to justify *any* number of required excavations." Pet'r Br. 59. Noting that the industry standard provides guidance on selecting "potential pipeline segments" and "dig sites within those segments," 87 Fed. Reg. at 52,262 (JA___), PHMSA reasonably concluded that operators who had been "successfully utiliz[ing]" the industry standard for decades were unlikely to incur "incremental cost," PHMSA-2011-0023-0637, at 24 (JA___). As explained above, the agency also spelled out why any nominal costs are justified by the benefits of systematizing the way in which operators check pipes for this significant form of cracking.

CONCLUSION

For the foregoing reasons, the petition for review should be denied.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limit of Federal Rule of Appellate Procedure 32(a)(7)(B) because it contains 12,313 words. This brief also complies with the typeface and type-style requirements of Federal Rule of Appellate Procedure 32(a)(5)-(6) because it was prepared using Microsoft Word 2016 in CenturyExpd BT 14-point font, a proportionally spaced typeface.

/s/ Brian J. Springer
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ADDENDUM

TABLE OF CONTENTS

49 U.S.C. § 60102

§ 60102. Purpose and general authority.

(a) Purpose and Minimum Safety Standards.

(1) Purpose.

The purpose of this chapter is to provide adequate protection against risks to life and property posed by pipeline transportation and pipeline facilities by improving the regulatory and enforcement authority of the Secretary of Transportation.

(2) Minimum safety standards. The Secretary shall prescribe minimum safety standards for pipeline transportation and for pipeline facilities. The standards—

(A) apply to any or all of the owners or operators of pipeline facilities;

(B) may apply to the design, installation, inspection, emergency plans and procedures, testing, construction, extension, operation, replacement, and maintenance of pipeline facilities; and

(C) shall include a requirement that all individuals who operate and maintain pipeline facilities shall be qualified to operate and maintain the pipeline facilities.

(3) Qualifications of pipeline operators.

The qualifications applicable to an individual who operates and maintains a pipeline facility shall address the ability to recognize and react appropriately to abnormal operating conditions that may indicate a dangerous situation or a condition exceeding design limits. The operator of a pipeline facility shall ensure that employees who operate and maintain the facility are qualified to operate and maintain the pipeline facilities.

(b) Practicability and Safety Needs Standards.

(1) In general. A standard prescribed under subsection (a) shall be—

(A) practicable; and

(B) designed to meet the need for—

(i) gas pipeline safety, or safely transporting hazardous liquids, as appropriate; and

(ii) protecting the environment.

(2) Factors for consideration. When prescribing any standard under this section or section 60101(b), 60103, 60108, 60109, 60110, or 60113, the Secretary shall consider—

(A) relevant available—

(i) gas pipeline safety information;

(ii) hazardous liquid pipeline safety information; and

(iii) environmental information;

(B) the appropriateness of the standard for the particular type of pipeline transportation or facility;

(C) the reasonableness of the standard;

(D) based on a risk assessment, the reasonably identifiable or estimated benefits expected to result from implementation or compliance with the standard;

(E) based on a risk assessment, the reasonably identifiable or estimated costs expected to result from implementation or compliance with the standard;

(F) comments and information received from the public; and

(G) the comments and recommendations of the Technical Pipeline Safety Standards Committee, the Technical Hazardous Liquid Pipeline Safety Standards Committee, or both, as appropriate.

(3) Risk assessment. In conducting a risk assessment referred to in subparagraphs (D) and (E) of paragraph (2), the Secretary shall—

(A) identify the regulatory and nonregulatory options that the Secretary considered in prescribing a proposed standard;

(B) identify the costs and benefits associated with the proposed standard;

(C) include—

(i) an explanation of the reasons for the selection of the proposed standard in lieu of the other options identified; and

(ii) with respect to each of those other options, a brief explanation of the reasons that the Secretary did not select the option; and

(D) identify technical data or other information upon which the risk assessment information and proposed standard is based.

(4) Review.

(A) In general. The Secretary shall—

(i) submit any risk assessment information prepared under paragraph (3) of this subsection to the Technical Pipeline Safety Standards Committee, the Technical Hazardous Liquid Pipeline Safety Standards Committee, or both, as appropriate; and

(ii) make that risk assessment information available to the general public.

(B) Peer review panels. The committees referred to in subparagraph (A) shall serve as peer review panels to review risk assessment information prepared under this section. Not later than 90 days after receiving risk assessment information for review pursuant to subparagraph (A), each committee that receives that risk assessment information shall prepare and submit to the Secretary a report that includes—

(i) an evaluation of the merit of the data and methods used; and

(ii) any recommended options relating to that risk assessment information and the associated standard that the committee determines to be appropriate.

(C) Review by secretary. Not later than 90 days after receiving a report submitted by a committee under subparagraph (B), the Secretary—

(i) shall review the report;

(ii) shall provide a written response to the committee that is the author of the report concerning all significant peer review

comments and recommended alternatives contained in the report; and

(iii) may revise the risk assessment and the proposed standard before promulgating the final standard.

(5) Secretarial decisionmaking.

Except where otherwise required by statute, the Secretary shall propose or issue a standard under this chapter only upon a reasoned determination that the benefits, including safety and environmental benefits, of the intended standard justify its costs.

(6) Exceptions from application. The requirements of subparagraphs (D) and (E) of paragraph (2) do not apply when—

(A) the standard is the product of a negotiated rulemaking, or other rulemaking including the adoption of industry standards that receives no significant adverse comment within 60 days of notice in the Federal Register;

(B) based on a recommendation (in which three-fourths of the members voting concur) by the Technical Pipeline Safety Standards Committee, the Technical Hazardous Liquid Pipeline Safety Standards Committee, or both, as applicable, the Secretary waives the requirements; or

(C) the Secretary finds, pursuant to section 553(b)(3)(B) of title 5, United States Code, that notice and public procedure are not required.

(7) Report. Not later than March 31, 2000, the Secretary shall transmit to the Congress a report that—

(A) describes the implementation of the risk assessment requirements of this section, including the extent to which those requirements have affected regulatory decisionmaking and pipeline safety; and

(B) includes any recommendations that the Secretary determines would make the risk assessment process conducted pursuant to the requirements under this chapter a more effective means of assessing the benefits and costs associated with alternative regulatory and

nonregulatory options in prescribing standards under the Federal pipeline safety regulatory program under this chapter.

. . .

49 C.F.R. § 192.478

§ 192.478. Internal corrosion control: Onshore transmission monitoring and mitigation.

(a) Each operator of an onshore gas transmission pipeline with corrosive constituents in the gas being transported must develop and implement a monitoring and mitigation program to mitigate the corrosive effects, as necessary. Potentially corrosive constituents include, but are not limited to: carbon dioxide, hydrogen sulfide, sulfur, microbes, and liquid water, either by itself or in combination. An operator must evaluate the partial pressure of each corrosive constituent, where applicable, by itself or in combination, to evaluate the effect of the corrosive constituents on the internal corrosion of the pipe and implement mitigation measures as necessary.

(b) The monitoring and mitigation program described in paragraph (a) of this section must include:

(1) The use of gas-quality monitoring methods at points where gas with potentially corrosive contaminants enters the pipeline to determine the gas stream constituents.

(2) Technology to mitigate the potentially corrosive gas stream constituents. Such technologies may include product sampling, inhibitor injections, in-line cleaning pigging, separators, or other technology that mitigates potentially corrosive effects.

(3) An evaluation at least once each calendar year, at intervals not to exceed 15 months, to ensure that potentially corrosive gas stream constituents are effectively monitored and mitigated.

(c) An operator must review its monitoring and mitigation program at least once each calendar year, at intervals not to exceed 15 months, and based on the results of its monitoring and mitigation program, implement adjustments, as necessary.

49 C.F.R. § 192.712

§ 192.712. Analysis of predicted failure pressure and critical strain level.

. . .

(c) Dents and other mechanical damage. To evaluate dents and other mechanical damage that could result in a stress riser or other integrity impact, an operator must develop a procedure and perform an engineering critical assessment as follows:

(1) Identify and evaluate potential threats to the pipe segment in the vicinity of the anomaly or defect, including ground movement, external loading, fatigue, cracking, and corrosion.

(2) Review high-resolution magnetic flux leakage (HR–MFL) high-resolution deformation, inertial mapping, and crack detection inline inspection data for damage in the dent area and any associated weld region, including available data from previous inline inspections.

(3) Perform pipeline curvature-based strain analysis using recent HR-Deformation inspection data.

(4) Compare the dent profile between the most recent and previous in-line inspections to identify significant changes in dent depth and shape.

(5) Identify and quantify all previous and present significant loads acting on the dent.

(6) Evaluate the strain level associated with the anomaly or defect and any nearby welds using Finite Element Analysis, or other technology in accordance with this section. Using Finite Element Analysis to quantify the dent strain, and then estimating and evaluating the damage using the Strain Limit Damage (SLD) and Ductile Failure Damage Indicator (DFDI) at the dent, are appropriate evaluation methods.

(7) The analyses performed in accordance with this section must account for material property uncertainties, model inaccuracies, and inline inspection tool sizing tolerances.

(8) Dents with a depth greater than 10 percent of the pipe outside diameter or with geometric strain levels that exceed the lessor of 10 percent or exceed the critical strain for the pipe material properties must

be remediated in accordance with § 192.713, § 192.714, or § 192.933, as applicable.

(9) Using operational pressure data, a valid fatigue life prediction model that is appropriate for the pipeline segment, and assuming a reassessment safety factor of 5 or greater for the assessment interval, estimate the fatigue life of the dent by Finite Element Analysis or other analytical technique that is technically appropriate for dent assessment and reassessment intervals in accordance with this section. Multiple dent or other fatigue models must be used for the evaluation as a part of the engineering critical assessment.

(10) If the dent or mechanical damage is suspected to have cracks, then a crack growth rate assessment is required to ensure adequate life for the dent with crack(s) until remediation or the dent with crack(s) must be evaluated and remediated in accordance with the criteria and timing requirements in § 192.713, § 192.714, or § 192.933, as applicable.

(11) An operator using an engineering critical assessment procedure, other technologies, or techniques to comply with paragraph (c) of this section must submit advance notification to PHMSA, with the relevant procedures, in accordance with § 192.18.

. . .

49 C.F.R. § 192.714

§ 192.714. Transmission lines: Repair criteria for onshore transmission pipelines.

. . .

(d) Remediation of certain conditions. For onshore transmission pipelines not located in high consequence areas, an operator must remediate a listed condition according to the following criteria:

(1) Immediate repair conditions. An operator's evaluation and remediation schedule for immediate repair conditions must follow section 7 of ASME/ANSI B31.8S (incorporated by reference, *see* § 192.7). An operator must repair the following conditions immediately upon discovery:

(i) Metal loss anomalies where a calculation of the remaining strength of the pipe at the location of the anomaly shows a predicted failure pressure, determined in accordance with § 192.712(b), of less than or equal to 1.1 times the [maximum pressure].

(ii) A dent located between the 8 o'clock and 4 o'clock positions (upper 2/3 of the pipe) that has metal loss, cracking, or a stress riser, unless an engineering analysis performed in accordance with § 192.712(c) demonstrates critical strain levels are not exceeded.

(iii) Metal loss greater than 80 percent of nominal wall regardless of dimensions.

(iv) Metal loss preferentially affecting a detected longitudinal seam, if that seam was formed by direct current, low-frequency or high-frequency electric resistance welding, electric flash welding, or has a longitudinal joint factor less than 1.0, and the predicted failure pressure determined in accordance with § 192.712(d) is less than 1.25 times the [maximum pressure].

(v) A crack or crack-like anomaly meeting any of the following criteria:

(A) Crack depth plus any metal loss is greater than 50 percent of pipe wall thickness;

(B) Crack depth plus any metal loss is greater than the inspection tool's maximum measurable depth; or

(C) The crack or crack-like anomaly has a predicted failure pressure, determined in accordance with § 192.712(d), that is less than 1.25 times the [maximum pressure].

(vi) An indication or anomaly that, in the judgment of the person designated by the operator to evaluate the assessment results, requires immediate action.

. . .

. . .

49 C.F.R. § 192.929

§ 192.929. What are the requirements for using Direct Assessment for Stress Corrosion Cracking?

(a) Definition. A Stress Corrosion Cracking Direct Assessment (SCCDA) is a process to assess a covered pipeline segment for the presence of stress corrosion cracking (SCC) by systematically gathering and analyzing excavation data from pipe having similar operational characteristics and residing in a similar physical environment.

(b) General requirements. An operator using direct assessment as an integrity assessment method for addressing SCC in a covered pipeline segment must develop and follow an SCCDA plan that meets NACE SP0204 (incorporated by reference, *see* § 192.7) and that implements all four steps of the SCCDA process, including pre-assessment, indirect inspection, detailed examination at excavation locations, and post-assessment evaluation and monitoring. As specified in NACE SP0204, SCCDA is complementary with other inspection methods for SCC, such as in-line inspection or hydrostatic testing with a spike test, and it is not necessarily an alternative or replacement for these methods in all instances. Additionally, the plan must provide for—

. . .

(3) Direct examination. In addition to NACE SP0204, the plan's procedures for direct examination must provide for an operator conducting a minimum of three direct examinations for SCC within the covered pipeline segment spaced at the locations determined to be the most likely for SCC to occur.

. . .

49 C.F.R. § 192.933

§ 192.933. What actions must be taken to address integrity issues?

. . .

(d) Special requirements for scheduling remediation.

(1) Immediate repair conditions. An operator's evaluation and remediation schedule must follow ASME/ANSI B31.8S, section 7 (incorporated by reference, *see* § 192.7) in providing for immediate repair conditions. To maintain safety, an operator must temporarily reduce operating pressure in accordance with paragraph (a) of this section or shut down the pipeline until the operator completes the repair of these conditions. An operator must treat the following conditions as immediate repair conditions:

(i) A metal loss anomaly where a calculation of the remaining strength of the pipe shows a predicted failure pressure determined in accordance with § 192.712(b) less than or equal to 1.1 times the [maximum pressure] at the location of the anomaly.

(ii) A dent located between the 8 o'clock and 4 o'clock positions (upper 2/3 of the pipe) that has metal loss, cracking, or a stress riser, unless engineering analyses performed in accordance with § 192.712(c) demonstrate critical strain levels are not exceeded.

(iii) Metal loss greater than 80 percent of nominal wall regardless of dimensions.

(iv) Metal loss preferentially affecting a detected longitudinal seam, if that seam was formed by direct current, low-frequency or high-frequency electric resistance welding, electric flash welding, or with a longitudinal joint factor less than 1.0, and where the predicted failure pressure determined in accordance with § 192.712(d) is less than 1.25 times the [maximum pressure].

(v) A crack or crack-like anomaly meeting any of the following criteria:

(A) Crack depth plus any metal loss is greater than 50 percent of pipe wall thickness;

(B) Crack depth plus any metal loss is greater than the inspection tool's maximum measurable depth; or

(C) The crack or crack-like anomaly has a predicted failure pressure, determined in accordance with § 192.712(d), that is less than 1.25 times the [maximum pressure].

(vi) An indication or anomaly that, in the judgment of the person designated by the operator to evaluate the assessment results, requires immediate action.

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